3300 had abnormal apo B/apo A ratio of which 3089 (91%) had CAD. Of 2920 patients with normal LDL levels (<100 mg), 2454 patients had abnormal apo B/apo A ratio of which 2200 (91%) had CAD. In 1946 patients on lipid lowering agents 1819 had abnormal apo B/apo A ratio with all of them (100%) having CAD.
Conclusion: Discussions on which is the ''most influential'' lipid parameter have been particularly unrewarding. This study ascertains the importance of apolipoproteins B and A and their ratio in relation to CAD. It substantiates the significance of the apo B/apo A ratio over conventional lipid profile values for predicting CAD and its severity.
Association of apo B/apo A ratio and CAD in patients with history of dyslipidemia on lipid lowering agents was found significant. This study has shown that statins have been effective in lowering LDL, but have not shown commensurate changes in apo B levels. Measurement of apo B and apo A should be added to the routine lipid profile assessment in order to know the atherogenic potential of lipid disorders in a particular case.

QRBBB in acute coronary syndrome: Does it matter in modern era? Angiographic correlation

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Background objective: The prevalence of right bundle branch block (RBBB) in the setting of acute myocardial infarction (MI) ranges from 1.6% to 10.9% (about 3–29% in pre-thrombolytic era). Many studies, especially in the pre-thrombolytic era, associated the presence of RBBB in presence of MI with higher mortality. The analysis of HERO-2 trial elegantly demonstrated that in the setting of acute coronary syndrome, presence of RBBB whatever the onset, is associated with high risk of death. Very few studies estimated the angiographic burden in patients presenting with acute coronary syndrome (STEMI and non-STEMI) and QRBBB. This research was intended to analyze various clinical characteristics and coronary angiographic findings in patients with ACS and QRBBB in ECG during index hospitalization and also treatment outcome
Methods: This cross sectional study was conducted in department of cardiology in a tertiary care center in Tamilnadu from February 2013 to February 2015. A total of 30 patients who were admitted to coronary care unit with features of ACS and ECG evidence of QRBBB (at presentation or during hospitalization) were included. Baseline characteristics were obtained and risk factors assessment were done. The patients underwent serial electrocardiography, chest X ray, 2D echocardiography. Coronary angiogram was done in all eligible patients and a detailed study of all coronary arteries were noted. Standard diagnostic criteria were applied to diagnose RBBB in ECG and to assess LV function by ECHO. Appropriate guidelines were followed for the management of ACS, thrombolytic therapy given in needed patients. Percutaneous interventions were performed in patients with angiographically suitable lesions. Patients were followed up throughout the hospital stay.
Results: Majority of patients were male (90%), predominant age group affected was between 50 and 60 (40%), lowest age was 32 years, highest age was 75 years. Out of total 30 patients, 26 patients diagnosed to have STEMI (86%), remaining 4 patients (14%) had features of NSTEMI. Only one patient (3%) had inferior wall MI in STEMI group, remaining patients (83%) had anterior wall MI. History of diabetes, hypertension, smoking were noted in 50%, 37%, and 37% respectively. STEMI patients were categorized with Killip grade. Majority of patients were at KC II (76%), about 7% of patients were in KC III and 4 patients (15%) of patients at KC IV. Out of four patients with QRBBB and cardiogenic shock (KC IV) only one could be revived. Mortality rate of 75% at KC IV were noted, whereas mortality in patients with acute MI without QRBBB is 57.8%. Left ventricular ejection fraction was lower in majority of patients with QRBBB average of about 44%. LVEF correlated with presentation of Killip class. Thrombolytic therapy was given to 18 patients (69% of total STEMI group). In hospital mortality rate in ACS and QRBBB was 10% (3 patients of total 30) with average duration of stay being less than 6 h. Out of 30 patients who presented with QRBBB, half of them did not show RBBB pattern on discharge, most of them had received thrombolytic therapy (80%). Patients presenting early (window period (WP) < 6 h) had shown higher rate of ECG resolution compared to patients presenting late(WP > 6 h) (72%vs 21%). Twenty five patients were submitted for coronary angiography and if necessary intervened. Left main coronary artery was free of disease in all patients. Left coronary artery is found to have significant stenosis in 60% of patients. Significant osteo-proximal lesion noted in 20%, proximal LAD astriding S1 seen in 32% of patients, proximal LAD cut-off in 8% of patients. Majority of patients with LAD disease had significant lesion at the proximal segment (87%). Associated mid LAD and distal LAD lesion were seen in 36% and 8% of study group respectively. Lesions of LCX and RCA were seen in 32%, 16% respectively. Five patients (20%) had double vessel disease, two had TVD (8%). Statistical significant association was found between the presence of QRBBB and associated osteo-proximal/proximal LAD lesion. On analyzing the angiographic pattern in patients with ECG resolution of RBBB, only 4 of them showed recanalized LAD, rest had significant lesions in LAD.
Conclusion and interpretation: Presence of QRBBB in the setting of acute coronary syndrome implicates patient is in high risk category. Culprit artery in RBBB with ACS is LAD proximal lesion hence the lower level of LVEF and higher Killip class. ECG resolution is more observed in patients who received thrombolytic therapy and who presented early to hospital but it did not necessarily indicate that angiographical burden of the disease will be low.

Intracoronary versus intravenous administration of tirofiban during percutaneous coronary intervention (PCI) in acute coronary syndrome (ACS) patients

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Background: To investigate the impact of intracoronary tirofiban injection on the short term events during percutaneous coronary intervention (PCI) in patients presenting with acute coronary syndrome (ACS).
Methods: This study is a randomized, double blind, prospective one. The cases were enrolled in those ACS patients undergoing PCI admitted during the period from December 2013 to November 2014. Patients were included if they fulfill all of the following criteria: Age ≥18 years of age, ACS with an indication for cardiac catheterization being unstable angina (angina <12 h prior to hospitalization), NSTEMI, STEMI treated >48 h previously by thrombolytic therapy, CAD with visual estimated stenosis ≥70% in at least one epicardial vessel suitable for stenting, planned coronary stenting as primary intervention modality. Patients who had any of the following criteria were excluded from the study: SBP<80 mm of Hg,

GPIIb-IIIa administrated within 2 weeks before study, CABG within 2 months or PCI within 6 months before study, STEMI undergone thrombolytic undergone within 48 h, unprotected LMCA >50% stenosis, sever coronary calcification, target lesion in SVG, acute STEMI with a primary PCI strategy and contraindication to anticoagulant therapy.
The patients were randomized alternately to intracoronary and intravenous tirofiban. Fifty seven patients were given intracoronary tirofiban and taken as study population and fifty eight patients were given intravenous tirofiban and taken as control population. In the control group, tirofiban was given intravenously as a bolus (10 μg/kg over 3 min) followed by maintenance intravenous infusion at 0.15 μg/kg/min for 36 h. In the study group, tirofiban was administered as an intracoronary bolus injection (10 μg/kg over 3 min) followed by maintenance intravenous infusion at 0.15 μg/kg/min for 36 h. All patients were evaluated at the end of 14 and 30 day period. Flow in the PCI-targeted coronary arteries was assessed by thrombolysis in myocardial infarction (TIMI) flowgrade. Left ventricular ejection fraction (LVEF) was assessed by standard 2-dimensional echocardiography at 14 and 30 days after PCI. Major adverse cardiac events (MACE), such as death, non-fatal myocardial infarction or re-infarction, revascularization of targeted vessels, or worsening left ventricular dysfunction, were also assessed at 14 days and 30 days following PCI. Major and minor bleeding complications within 14 days also evaluated.
Results: Compared with the control group, the study group showed better TIMI flow grades and TIMI myocardial perfusion grades (TMPG) immediately after PCI ($p = 0.016$ and 0.026, respectively). The 14-day composite MACE rate was lower in the study group (3.5% vs 17.5%, $p = 0.030$), but was similar between the 2 groups at 30 days following PCI (7.0% vs 1.7%, $p = 0.350$). The LVEF in the study group was higher than in the control group 30 days following PCI (67.4 ± 6.2% vs 60.7 ± 4.6%, $p = 0.033$). The 14-day bleeding complication ($p = 0.201$) was similar between the 2 groups.
Conclusion: In patients with ACS undergoing primary PCI, intracoronary bolus administration of tirofiban is superior to intravenous bolus injection for improving coronary flow, myocardial perfusion and short-term clinical outcome.

Predictors of no reflow/slow flow during primary percutaneous coronary intervention in patients with acute myocardial infarction

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Background: The aim of treatment for acute myocardial infarction (AMI) is to restore full antegrade blood flow in the infarct-related artery and minimize ischemic damage to the myocardium. However, primary PCI is associated with a serious problem known as the no-reflow phenomenon (thrombolysis in myocardial infarction (TIMI) flow ≤2), which occurs in 5–25% of cases.
Methods: This is a case control study of all consecutive patients with AMI admitted at our institution and underwent primary PCI from August 2014 to February 2015 based on ACC/AHA guidelines.
Results: In the 181 patients who had undergone primary PCI, 47 (25.9%) showed an angiographic no-reflow phenomenon.
Multiple stepwise logistic regression analysis identified that reperfusion time >6 h (OR = 13.844, 95%CI 3.214–59.636, $p = <0.001$), age >60 years (OR = 8.886, 95%CI 2.145–36.80, $p = 0.003$), a long target lesion (OR = 8.637, 95%CI 1.975–37.768, $p = 0.004$), low initial TIMI flow (≤1) (OR = 20.861, 95%CI 1.739–250.290, $p = 0.017$) were the independent predictors of the no-flow phenomenon in our study.
Conclusions: In conclusion, the pathogenesis of no-reflow phenomenon is complex and multifactorial. In the light of our recent study, patients who are likely to develop the no-reflow phenomenon after primary PCI can be predicted by simple clinical and angiographic features.
It is important to avoid or minimize trauma to the vessel, avoid repetitive balloon dilatations and use the shortest stent if possible. Because most patients with AMI have a combination of these factors, combined treatment strategies should be preferred.

Acute myocardial infarction in young adults: Study of risk factors, angiographic features and clinical outcome

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Background: Acute myocardial infarction below 45 years of age constitutes a specific subset of population having different risk factors and clinical features and prognosis as compared to older patients. The protection offered by young age has been slowly taken away by the increased prevalence of risk factors for CHD in adolescents such as smoking, obesity, and lack of physical activity.
Objective: The purpose of this study is to describe the risk factors, clinical features, angiographic patterns and outcomes in AMI in young patients (<45 years) and to compare the same with the older subjects (>45 years) and to study the various complications in 7 days follow up.
Material and methods: The present study was carried out at the LPS institute of cardiology Kanpur. Total 150 cases of acute myocardial infarction admitted in ICCU during 1st January 2014 to 1st January 2015 were enrolled and were categorized in two groups: (a) Group I – age <45 years, b) Group II age ≥45 years. Fasting blood glucose, fasting lipid profile, serial ECGs and the cardiac enzymes (troponin T and I) were evaluated. The risk factors which were studied were hypertension, diabetes mellitus, smoking habits, overweight, waist to hip ratio, hyperlipidemia and family history.
Results: Mean age of the cases was 38 ± 7 and 68.2 ± 5 in group I and II respectively. The male and female ratio was 3:1 in group I and 1.5:1 in group II. Atypical chest pain, sweating, dyspnea and giddiness were less frequently in the younger group with AMI than group II. Younger subjects arriving within 6 h of chest pain was significantly more as in no compared to older subjects (49/65 i.e. 75% vs 38/85 i.e. 45%, $p = <0.05$). Tobacco consumption was the most common risk factor in group I (71% vs 25% in group II). Anterior wall MI, (including lateral MI) was the most common presentation present in 57.64% of the patients in group I vs 45% in group II. The incidence of major complications like congestive cardiac failure, arrhythmias, cardiogenic shock were significantly less in the younger group (50%, 20%, 5%) as compared to (75%, 55%, 15%) respectively in older group. Mortality was significantly lower in group (I) than (group II) 5% vs 20%. Angiography results showed SVD in 48% patients in group I vs 25% in group II. TVD was present in only 3% of the patients in group I vs 27% in group II. LMCA was involved in 3% in group I vs 12% in group II. Normal or nonsignificant coronaries were present in 18% in group I vs 2% in group II. From these results we conclude that Myocardial infarction before age 45 is a disease of men. Young patients tend to have less extensive coronary artery lesions. Very low prevalence of Triple-vessel disease is present. Young patients have more favourable in hospital prognosis than their older counterparts. A sizeable proportion of patients will have normal coronary arteries. Health